



PATENT
Attorney Docket No.: BSC-217RECN

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(S): Lev

SERIAL NO.: 09/923,279 GROUP NO.: 3739

FILING DATE: August 6, 2001 EXAMINER: Not yet assigned

TITLE: RADIATING DEVICE FOR HYPERTHERMIA

Box Non-Fee Amendment
Commissioner for Patents
Washington, D.C. 20231

SUPPLEMENTAL PRELIMINARY AMENDMENT

Prior to examination, please enter the amendments to the claims introduced in this Supplemental Preliminary Amendment and consider the accompanying remarks. In accordance with 37 CFR 1.121, a marked-up copy of the amended claims and a clean copy of all pending claims are attached at the end of this Amendment.

In the Claims:

Please add claims 80 - 90 as follows:

80. (New) A radiating device for irradiating a cavity comprising:
a catheter;
an antenna, situated at a distal portion of the catheter, for irradiating the cavity;
a central channel adapted to provide a fluid to the cavity;
a side channel adapted to receive the fluid from the cavity;
at least one side branch, situated at a proximal portion of the catheter; and
at least one temperature sensing device, having an end, the end of the at least one temperature sensing device extending outward from the catheter after the catheter is inserted into the cavity;
wherein the end of the at least one temperature sensing device is adapted to detect a temperature of a wall of the cavity irradiated by the antenna.

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81. (New) The radiating device according to claim 80 wherein the at least one side branch provides an inlet for the fluid to enter the central channel.

82. (New) The radiating device according to claim 80 wherein the at least one side branch provides an outlet for the fluid to exit from the side channel.

83. (New) The radiating device according to claim 80 further comprising:

an inflatable balloon situated at the distal portion of the catheter;
a second side channel adapted to provide a fluid used to inflate the inflatable balloon; and
a one-way valve for introducing the fluid used to inflate the inflatable balloon to the second side channel.

84. (New) The radiating device according to claim 83 wherein the fluid used to inflate the inflatable balloon is a liquid.

85. (New) The radiating device according to claim 83 wherein the fluid used to inflate the inflatable balloon is a gas.

86. (New) The radiating device according to claim 80 wherein the fluid comprises a conditioning liquid.

87. (New) The radiating device according to claim 80 wherein the fluid comprises a solution of a selective cytotoxicity substance.

88. (New) The radiating device according to claim 80 wherein the antenna comprises a linear dipole antenna.

89. (New) The radiating device according to claim 88 wherein the linear dipole antenna comprises a coil-shaped segment.

90. (New) The radiating device according to claim 80 further comprising a stainless steel wire coupled to the at least one temperature sensing device.

REMARKS

Applicant introduces new claims 80 - 90. Upon entry of this paper originally-filed claim 1 and claims 80 - 88 will be pending in this application.

Applicant submits that support for claims 80 - 90 can be found at least on page 3, paragraph numbers [0020], [0021], and [0022], page 5, paragraph number [0028], and page 7, paragraph number [0034], and in Figures 1, 3, and 5 of the substitute specification. Applicant respectfully submits that no new matter is added.

CONCLUSION

Applicant respectfully requests allowance of claim 1 and claims 80 – 90 in due course. The Examiner is invited to telephone the undersigned to address any comments or questions that the Examiner may have.

Applicant believes that no additional fees are necessitated by the present Supplemental Preliminary Amendment. However, in the event that any additional fees are due, the Commissioner is hereby authorized to charge any such fees to Attorney's Deposit Account No. 20-0531.

Respectfully submitted,

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MARKED-UP COPY OF AMENDMENTS TO CLAIMS

Claims 80 – 90 are introduced as follows:

80. (New) A radiating device for irradiating a cavity comprising:
a catheter;
an antenna, situated at a distal portion of the catheter, for irradiating the cavity;
a central channel adapted to provide a fluid to the cavity;
a side channel adapted to receive the fluid from the cavity;
at least one side branch, situated at a proximal portion of the catheter; and
at least one temperature sensing device, having an end, the end of the at least one temperature sensing device extending outward from the catheter after the catheter is inserted into the cavity;
wherein the end of the at least one temperature sensing device is adapted to detect a temperature of a wall of the cavity irradiated by the antenna.
81. (New) The radiating device according to claim 80 wherein the at least one side branch provides an inlet for the fluid to enter the central channel.
82. (New) The radiating device according to claim 80 wherein the at least one side branch provides an outlet for the fluid to exit from the side channel.
83. (New) The radiating device according to claim 80 further comprising:
an inflatable balloon situated at the distal portion of the catheter;
a second side channel adapted to provide a fluid used to inflate the inflatable balloon; and
a one-way valve for introducing the fluid used to inflate the inflatable balloon to the second side channel.
84. (New) The radiating device according to claim 83 wherein the fluid used to inflate the inflatable balloon is a liquid.

85. (New) The radiating device according to claim 83 wherein the fluid used to inflate the inflatable balloon is a gas.

86. New) The radiating device according to claim 80 wherein the fluid comprises a conditioning liquid.

87. (New) The radiating device according to claim 80 wherein the fluid comprises a solution of a selective cytotoxicity substance.

88. (New) The radiating device according to claim 80 wherein the antenna comprises a linear dipole antenna.

89. (New) The radiating device according to claim 88 wherein the linear dipole antenna comprises a coil-shaped segment.

90. (New) The radiating device according to claim 80 further comprising a stainless steel wire coupled to the at least one temperature sensing device.



CLEAN COPY OF ALL PENDING CLAIMS

1. A radiating device for hyperthermia including a catheter provided at its distal end with an inflatable balloon (7) and adapted to receive multiple injected liquid fluid flows (2,5,8) passing therethrough, a radiofrequency radiating antenna (1) and multiple thermocouples (6,6',6''), the radiating antenna being submerged within a fluid flow, characterized in that

said radiating antenna (1) is submerged within a flow which proceeds through a central channel (2) surrounding said radiating antenna (1) towards the distal end of said catheter and passes from said catheter through a first opening (3) into a bladder to be treated, while flowing back into said catheter towards the proximal end thereof through a second separate opening (4) of a side channel (5) surrounding the power supply cables of said thermocouples (6,6',6''),

the ends of said thermocouples (6,6'6'') project out of said second opening (4), being thus deflected outwards into the bladder when said balloon (7) is inflated by injecting a fluid through a second side channel (8) and third opening (9), whereby the outwardly deflected ends of said thermocouples (6,6',6'') come into tangential engagement with a bladder wall (32) irradiated by said antenna (1).

80. (New) A radiating device for irradiating a cavity comprising:

a catheter;

an antenna, situated at a distal portion of the catheter, for irradiating the cavity;

a central channel adapted to provide a fluid to the cavity;

a side channel adapted to receive the fluid from the cavity;

at least one side branch, situated at a proximal portion of the catheter; and

at least one temperature sensing device, having an end, the end of the at least one temperature sensing device extending outward from the catheter after the catheter is inserted into the cavity;

wherein the end of the at least one temperature sensing device is adapted to detect a temperature of a wall of the cavity irradiated by the antenna.

81. (New) The radiating device according to claim 80 wherein the at least one side branch provides an inlet for the fluid to enter the central channel.

82. (New) The radiating device according to claim 80 wherein the at least one side branch provides an outlet for the fluid to exit from the side channel.

83. (New) The radiating device according to claim 80 further comprising:

an inflatable balloon situated at the distal portion of the catheter;

a second side channel adapted to provide a fluid used to inflate the inflatable balloon; and

a one-way valve for introducing the fluid used to inflate the inflatable balloon to the second side channel.

84. (New) The radiating device according to claim 83 wherein the fluid used to inflate the inflatable balloon is a liquid.

85. (New) The radiating device according to claim 83 wherein the fluid used to inflate the inflatable balloon is a gas.

86. New) The radiating device according to claim 80 wherein the fluid comprises a conditioning liquid.

87. (New) The radiating device according to claim 80 wherein the fluid comprises a solution of a selective cytotoxicity substance.

88. (New) The radiating device according to claim 80 wherein the antenna comprises a linear dipole antenna.

89. (New) The radiating device according to claim 88 wherein the linear dipole antenna comprises a coil-shaped segment.

90. (New) The radiating device according to claim 80 further comprising a stainless steel wire coupled to the at least one temperature sensing device.